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NASA Lightweight 'Ice Zapper' To Be Used On New Aircraft

An innovative NASA ice removal system will be included with the first new general aviation aircraft to be introduced in the United States in 15 years. The lightweight, patented device will zap dangerous ice from wings and other aircraft parts during flight.

Lancair Inc., Bend, OR, will test the ice removal system with its Lancair IV aircraft and make the system available later this summer with the new Columbia 300, a four-seat, general aviation airplane. Even in warm climates, aircraft icing can be a problem at higher altitudes where temperatures are cold.

In 1995, NASA licensed the ice zapper, officially known as the Electro-Expulsive Separation System, to Ice Management Systems, Inc., Temecula, CA, for development and marketing. Ice Management recently agreed to develop the system for Lancair aircraft.

"The ice zapper uses one-thousandth the power and is one-tenth the weight of electro-thermal ice removal systems used today," said inventor Leonard Haslim of NASA's Ames Research Center. "The system pulverizes ice into small particles and removes layers of ice as thin as frost or as thick as an inch of glaze."

Haslim, a Naval jet fighter pilot during the Korean conflict, continues to be concerned with flying safety. He holds numerous patents, and he won NASA's inventor of the year award in 1988 for the Electro-Expulsive Separation System, which he also calls the "ice zapper."

"The Lancair aircraft, which cruises above 18,000 feet at 345 mph, is the perfect first candidate for this unique, new de-icing system, and this program complements our goal of enhancing safety and increasing the utility of our aircraft," said Lancair president Lance Neibauer.

There are other methods to combat airframe icing, including thermal de-icing and pneumatic boots. "Thermal de-icers that melt ice use a lot of energy," Haslim said. "Also, melted ice can re-freeze elsewhere on the aircraft, or larger loose ice shards can fly into the aircraft to cause damage."

"The system uses a powerful electronic photoflash-like power supply combined with a thin copper ribbon that looks like

a belt flattened on itself and embedded in a rubbery plastic," he said. "The looped, flattened copper ribbons are bonded to wings, engine inlets and other airplane parts where ice can form."

In less than a millisecond, the system sends bursts of high-current electricity through the two parallel layers of copper ribbon. The resultant magnetic fields suddenly repel each other. The upper ribbon jumps less than twenty-thousandth of an inch causing a high acceleration. The motion breaks the ice bond, shatters the ice into table-salt-size particles and expels them from the airplane's surface. The system can run continually during flight, pulsing once or twice a minute, to keep airplane surfaces ice free. The system's overlapping copper ribbon prevents electrical interference.

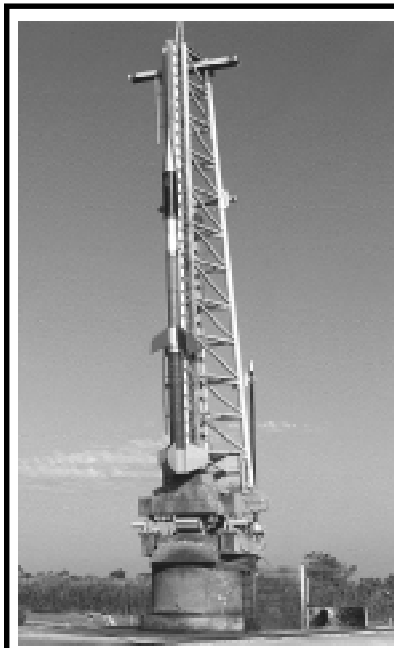
Wallops Shorts.....

Fire Department

The Wallops Fire Department answered a mutual aid request on June 14. Emergency medical personnel responded with an ambulance to standby during a structure fire at the Fox Funeral Home, Chincoteague, VA.

Student Launch

A Nike-Orion sounding rocket was launched from Wallops Island on June 17. The payload contained a student designed Attitude Control System, a chaff experiment and an on-board camera. A part of the Student Launch Program, the launch was to strengthen and enhance through sounding rocket research the education of future scientists and engineers. The principal investigator was Tom Bascinao, University of Cincinnati and Dave Moltedo was the Wallops payload manager.



The Nike-Orion student rocket (left) mounted on the launcher. University of Cincinnati students (below) assemble the payload prior to launch.



Digital photos by Rick Huey

New Technology Gives Motorists an Early Warning

A new traffic technology can warn motorists quickly of rapidly approaching emergency vehicles and trains. The Emergency Vehicle Early Warning Safety System, or E-VIEWS, developed with the assistance of the Technology Affiliates Program at NASA's Jet Propulsion Laboratory is particularly timely given the increasing incidence of police chases.

The system equips emergency vehicles with transponders that communicate via microwave with receivers on large visual displays deployed on the mastarms above the centers of intersections. As vehicles approach the intersections, signal lights turn yellow, then red, for cross-traffic, and approaching drivers also view flashing vehicle symbols on the visual displays.

These displays, linked to receivers, inform drivers of the direction from which emergency traffic is approaching or departing the intersection. The vehicle symbols appear to move across the displays, synchronized with the actual emergency vehicles' movements.

Through the Technology Affiliates Program, businesses can work with engineers to solve specific tasks. E-Lite was paired with JPL engineers to solve engineering design issues. These included not only E-VIEWS' transponders, but also comprehensive designs which blend with existing city communications infrastructures. E-VIEWS is now being further refined with an eye toward installation of demonstration models in large metropolitan areas.

Health Hints
by Dianne Hargrove, R. N.

**American Cancer Society's
Guidelines for the Early
Detection of Breast Cancer**

Recently, the American Cancer Society changed its mammography guidelines to one simple recommendation:

WOMEN 40 YEARS OF AGE AND OVER SHOULD GET ANNUAL MAMMOGRAMS.

New scientific evidence is clear. More lives will be saved if women in their forties get mammograms every year, rather than every one to two years.

Talk with your doctor about beginning a program of regular mammography. If you are 40 or over and are already getting regular mammograms, make sure you get one a year. Look for the Food and Drug Administration certificate at your mammography facility. This shows that the facility complies with the law to give you the best mammogram possible.

Regular mammography saves lives. The test is safe and effective. It's the best way to find breast cancers early, when they are most treatable.

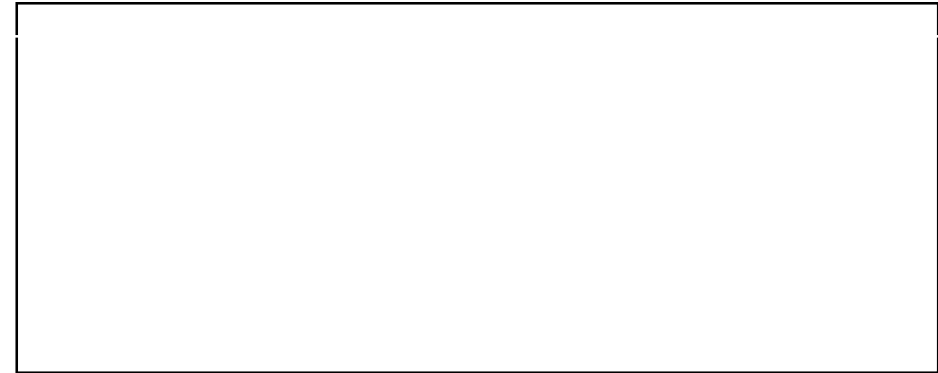
The American Cancer Society recommends a clinical breast examination (CBE) by a doctor or nurse every year if you are 40 or over close to the time of your mammogram. Between the ages of 20 and 40, you should get a CBE every three years.

All women over 20 should perform breast self-examination every month. By examining your breasts regularly, you and your doctor can be aware of changes in your breast that are not normal. Most lumps are not cancer, but all lumps should be checked by a doctor. If you notice a change, call your doctor immediately.

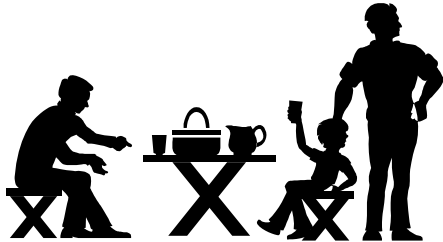
Even after you begin having regular mammograms, regular breast examinations are still important because mammography may miss a small number of cancers.

If you have a history of breast cancer in your family, discuss mammography screening guidelines and scheduling with your health care provider.

**The Mobile Unit will
be at Wallops for
Mammogram Screening
Wednesday, July 8
Building F6 Parking Lot
Call x1266 or x1336 for
information.**



Wallops Annual Picnic



**June 27
Noon to 5 p.m.
Ball Field Picnic Area**

Food, Music and Fun

Burgers, hot dogs, corn on the cob, sodas and beer will be provided. Please bring a covered dish to share.

**DJ
Noon to 4 p.m.**

Waterslide, volleyball, softball, hayride and horse-shoes

For information contact Gerry McIntire, x1889 or Bev Hall, x1714



**Name That Tune
Wednesday
June 24
7 p.m.
Bldg. F-3**

Prizes will be awarded. For information call Jan Neville, x1526 or Bob Tittle, x1244.

Sun Safety Tips

Sunscreen is more effective if you put it on 15 minutes before going out in the sun. Apply a sunscreen with a sun-protection factor (SPF) of 15 or higher and reapply it frequently.

Long-sleeved shirts and wide-brimmed hats help block the penetration of harmful ultra-violet rays to the skin.

Since ultra-violet rays may contribute to the development of cataracts, wear your sunglasses to help screen out rays.

If children use sunscreen during their first 18 years of life, they can significantly reduce their occurrence of skin cancer.

Staying Cool in the Heat

During a normal summer, anywhere from 175 to 1,500 Americans die from heat, making it the leading weather related killer in the U.S.

The National Weather Service combines heat and high humidity to arrive at the Heat Index. If the temperature is 90°F and humidity is 65% the Heat Index is 102°F — that's how hot it feels. In the U.S., Texas leads for high average Heat Index with five of the top 10 cities.

For athletes, the elderly and those in poor physical condition, high heat paired with high humidity can be as dangerous as extreme cold. The body needs the evaporation of sweat to carry heat from its core and to cool the skin. High humidity retards this process. When humidity is high you tire easily, the heart works harder and prolonged exertion is more difficult.

Precautions During Hot-Weather

- ✓ Stay out of the mid-day sun, when possible. Avoid strong, hot, dry winds. Seek air-conditioned spaces.
- ✓ Slow down. Exercise in a pool or an air-conditioned room.
- ✓ Drink plenty of fluids, but avoid alcoholic or caffeine beverages, which have a dehydrating effect.
- ✓ Cut down your intake of proteins and fats, which increase the body's heat production. Eat fruits and vegetables. Eat smaller meals around midday.
- ✓ Wear loose-fitting, lightweight, light-colored clothing to reflect heat and sunlight and keep you cool.

Notice: Due to preparations for the July 15 GSFC Property Sale, the Excess Office will provide limited service for emergencies only. There will be no screening during the period June 24 through July 15, 1998. For further information call Erich Gillespie, x1854.

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees.

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